MANPRINT Quarterly

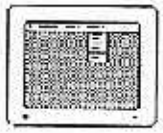
Vol. II, No. 4 Fall 1994

ATTENTION MANPRINT PRACTITIONERS

As a result of feedback received at the recently completed Practitioners Conference, the MANPRINT Office is pursuing the potential of setting up a "MANPRINT" E-Mail mailbox.

This E-mail box would operate from HQDSS with network connection to the "internet." The concept of operations would allow MANPRINT practitioners a direct connection with the HQDA MANPRINT Office and allow messages to be forwarded to other practitioners. The "internet" connection would hopefully allow our industry partners access to the MANPRINT network. I ask that any comments or suggestions to this idea be sent to "commerfo@pentagon-hqdss.army.mil". For those of you who would like to send comments by mail, please send them to HQDA, ODCSPER, ATTN: DAPE-MR, 300 Army Pentagon, Washington, DC 20310-0300.

With your support we can get the MANPRINT E-Mail network up and running. Look for more information on this effort to appear in upcoming issues of the Quarterly.



contents

* The MANPRINT Questions & Answers "Tear-Out" is designed to be removed for reproduction and information.

MANPRINT Calendar

Training

MANPRINT for Managers Course

95-701	4 - 5 Oct 94	Natick Labs, MA
95-702	15 - 16 Nov 94	FT Gordon, GA
95-703	29 - 30 Nov 94	FT Gordon, GA

MANPRINT Action Officer Course

95-701	18 - 27 Oct 94	FT Sam Houston, TX
95-001	24 Oct - 03 Nov 94	FT Lee, VA
95-702	2 - 15 Dec 94	FT Gordon, GA

Meetings of Interest

October 17 - 19, 1994
1994 AUSA Annual Meeting
Sheraton Washington Hotel

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Omni Shoreham Hotel

October 31 - November 3, 1994

DoD Human Factors Engineering Technical Advisory Group
Orlando, FL

Contact: Dr. Joe McDaniel
(513) 255-2558; fax (513) 255-9198

The Soldier-Information Interface

Dr. Thomas H. Killion
Human Research & Engineering Directorate
U.S. Army Research Laboratory

The Army has adopted a force modernization strategy which is heavily dependent on advances in computers, communications, and intelligence technology. A key component of this modernization process is the initiative for digitization of the battlefield. This initiative is critical for maintaining the U.S. Army's technological edge in Information Age warfare, in which the outcome of warfare increasingly depends on the acquisition, control, and effective use of knowledge.

Much of the emphasis to date in the digitization initiative has focused on the hardware and software required to support it. However, of equal if not more importance is the effective integration of the digital subsystem(s) with the soldiers who will operate and maintain it. A key part of this integration is the design of the interface between the soldier and information assets that digitization provides.

A variety of terms have been adopted to refer to the interface between the human operator and a system: man-machine interface, human-system interface, human-computer interface, and user interface are some of the more common ones. In considering the issue of designing interfaces in the context of the digitization initiative, it may be fruitful to think in terms of the *soldier-information interface* (SII). The purpose of using this terminology is to focus attention on the cognitive aspects of the SII, as opposed to other characteristics of the interface (e.g., the physical layout of a computer workstation). Figure 1 illustrates some of the aspects of the SII.

The SII provides a "window on the battlefield" for multiple users. It can be described in terms of three general components: (1) the external interface to (other) battlefield systems; (2) the embedded processing and display capabilities, including databases and

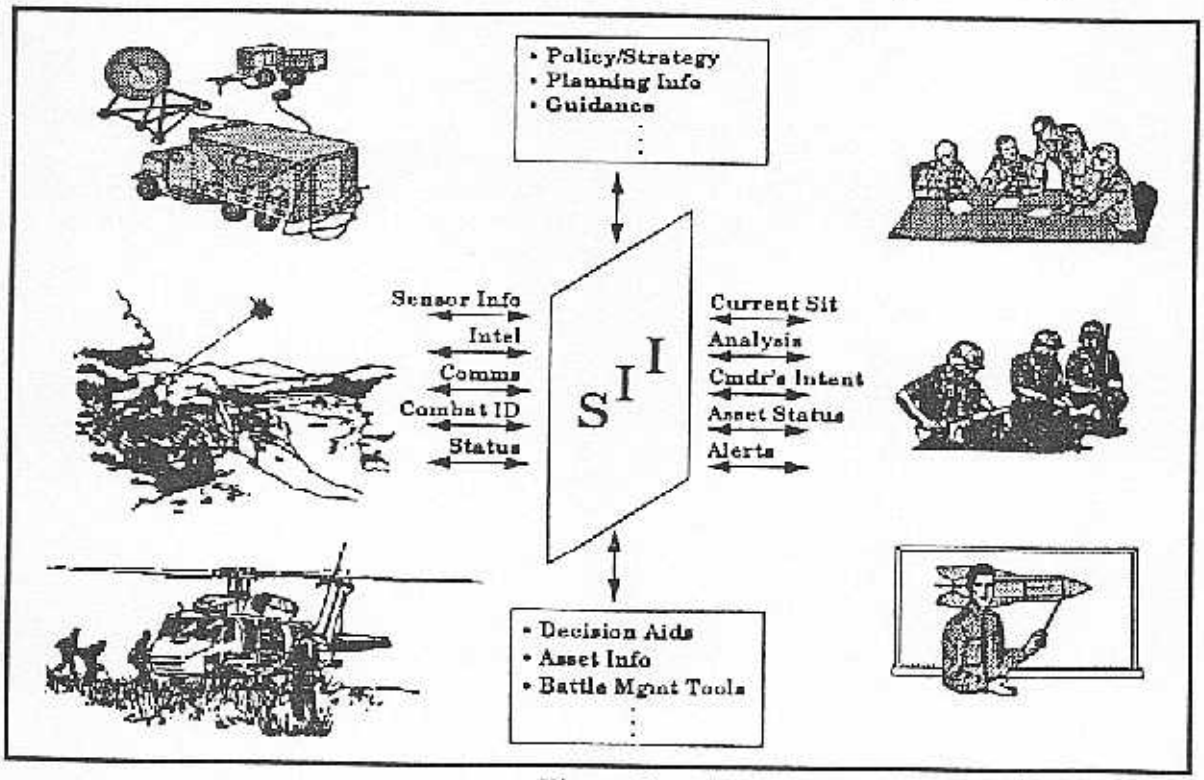

Figure 1
The Soldier-Information Interface (SII)

information processing tools; and (3) the internal interface to the operator/user.

On the external interface side, digitization has the potential for providing access to a wide variety of information. Some of the types of data of interest include friendly and enemy force assets and positions, the battlefield area of operations (including terrain and environmental data), targeting data, and friendly asset status (e.g., weapons loads, maintenance status, crew status). The utility of specific information will obviously be a function of the echelon of command being considered and the function(s) being performed.

In terms of embedded processing, the SII will incorporate a variety of tools and databases to support the generation and management of information. Examples include digital maps of the battlefield area, planning routines, tactical decision aids, communications protocols, and database management algorithms. These tools will assist the soldier in understanding the battlefield situation, examining optional scenarios, and managing available assets. What is presented to the user must also be influenced by factors such as national military strategy and policy, guidance from higher headquarters, and other elements that may influence the tactical options and decision making. One of the key elements in the design of the SII will be the way functions are allocated between the system and the soldier. The incorporation of intelligent aids or advanced data processing and management tools can reduce the workload of the operator but may increase dependence on the system. Issues such as backup modes of operation and redundancy in the battlefield network if key nodes are lost are relevant here.

On the internal interface side, the SII must be adaptable to a wide variety of users. The demands that they make on the SII will depend upon the current task, the function(s) being performed, the echelon of operations, and so on. Advances in computing, display and audio technology enable the generation of a wide variety of visual formats or audio outputs. This has led to the increased use of graphical or pictorial interfaces, which are more "natural" to the non-specialist. The key, however, is that for any given echelon, the SII must provide an appropriate representation of the battlefield, which ensures that high priority information is conveyed while minimizing extraneous or unnecessary information. There are also individual differences between individuals with regard to the format(s) they prefer. The SII must be adaptable to these individual preferences as well as to task demands.

Effective design of the SII will require careful analyses across the various MANPRINT domains to maximize benefits and minimize any negative impact on individual operators, maintainers, supporters, the fighting unit, and the force as a whole. The most obvious area of concern is that of Human Engineering. As mentioned earlier, the adoption of the term *soldier-information interface* was specifically designed to focus attention on the cognitive aspects of the interface. This includes such considerations as mental workload, the level of expertise of the user, memory limitations, the use of mental models, and decision making strategies. The goal is to guide effective designs that exploit the unique capabilities of the human information processor while compensating for known limitations.

Closely related to the issues inherent in Human Engineering are those related to the Training domain. There are clearly tradeoffs between design complexity and training requirements. The use of "natural" display formats (e.g., graphics, plain text), menu-based architectures and other such techniques can reduce the level of sophistication required by the user. However, what is appropriate for the experienced operator may be quite different from what is useful for the novice. Knowledge that has been gleaned regarding the development and nature of expertise can aid in the design of appropriate training programs. The SII also offers the potential for enhanced training. Through the use of embedded training and use of the SII as a window into the distributed interactive simulation (DIS) environment, the SII

(continued on Page 9)

Getting The Word Out

by Jan Dykhuis
MANPRINT Division, Deputy Chief of Staff for Plans, Force Integration and Analysis (DCSPLANS), U.S. Total Army Personnel Command

It may seem like only yesterday, but the Army has been teaching MANPRINT for almost ten years. Much of the training is done at Army installations throughout the U.S. To date, over 5,300 students, from officer to enlisted, DoD, Tri-Service and civilian contractors have graduated. We have also trained military and civilians from Canada and England.

The proponent for MANPRINT training is the MANPRINT Division, Deputy Chief of Staff for Plans, Force Integration and Analysis (DCSPLANS), U.S. Total Army Personnel Command. The instructors are from the Army Logistics Management College (ALMC), Ft. Lee, VA. Most of the training is conducted at locations throughout the U.S. An annual training schedule is published each spring in the MANPRINT Quarterly. We travel primarily to Army installations. However, arrangements can be made to bring our instructors to other locations such as DoD contractor facilities and other service sites as required.

Currently we offer two courses and a MANPRINT Workshop:

- The **MANPRINT FOR MANAGERS COURSE** (2 days)
  Designed to provide training to mid-level managers in Army organizations with MANPRINT missions and functions so that they can effectively manage and achieve MANPRINT program goals. The course emphasizes the purpose for MANPRINT, the MANPRINT philosophy/program, and a brief overview of the seven domains (Manpower, Personnel, Training, Human Engineering, Health Hazards, System Safety, and Soldier Survivability).

- The **MANPRINT ACTION OFFICERS COURSE** (8 days)
  Designed to train officers, warrant officers, non-commissioned officers, civilian personnel, and DoD contractors responsible for integrating MANPRINT considerations into the system development and acquisition process. Additional skill identifier (ASI) 6S is awarded to CPTs, MAJs and LTCs upon successful completion of the course.

- New in FY 95 is a **MANPRINT WORKSHOP**
  This is a tailorable course from 3 to 5 days in length with a focus on customer needs. These courses are by special request only. Three of these workshops, MANPRINTing of Major Automated Information Systems Review Council (MAISRC) Systems, will be offered at three different locations during FY 95. These courses are primarily designed for those who are responsible for acquisition of Army MAISRC level systems. The focus will be on how MANPRINT applies during the life-cycle of these systems and how the MANPRINT process can influence hardware/software design and development. Did you know that MANPRINT Training is also available in other DoD and Army courses?

Defense Systems Management College (DSMC)

The Defense Systems Management College (DSMC) is an Under Secretary of Defense tool for ensuring the up-to-date training of military and civilian professionals in the management of materiel acquisition programs within DoD. DoD Directive 5000.1 for acquisition management spells out Human System Integration (HSI) policy for all services. MANPRINT is the Army program to implement this directive. DSMC includes

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ACHIEVING INTEGRATION

Integration, the core element of the MANPRINT process, is achieved by:

1. Vigorous employment of the MANPRINT Joint Working Group (MJWG) and cross-fertilization between and among the seven domains to determine resultant impacts on each other, as well as on design, cost, and schedule;

2. Use of the System MANPRINT Management Plan (SMMP) to record and surface issues and concerns raised by the MJWG, thereby enabling management to guide and track government and industry efforts toward successful resolution through the entire life cycle of the system;

3. Incorporating MANPRINT considerations in fundamental disciplines (including those of research, development, testing, production, maintenance, and support) that affect acquisition process activities. These activities include definition of requirements, acquisition strategies, integrated logistics support, testing, solicitation, source selection, and government/contractor interface;

4. Applying integration methods and techniques that identify trade-offs quantitatively among the MANPRINT domains and with MANPRINT as a whole against total system performance and life cycle cost, thereby affecting acquisition process decisions.

For more information, write to:
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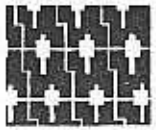
ODCSPER
ATTN: DAPE-MR
300 Army Pentagon
Washington, DC 20310-0300
DSN:22X-XXXX
Comm: (703) 695-9213/14/15/16
FAX: (703) 697-1283 DSN 227

The Seven MANPRINT Domains



MANPOWER (quantitative) addresses the determination of human resources by number and organizational structure. This domain establishes appropriate goals and constraints to address the impact of a new or modified system on Army manpower authorizations.

PERSONNEL (qualitative) considers the aptitudes, experiences, and other physical and mental characteristics needed by those who will operate, maintain, and support the equipment when fielded.

TRAINING focuses on the instruction, time and supporting resources (equipment, devices, technology) required to transfer to target audience personnel the knowledge, skills, and abilities which will enable and sustain efficient operation, maintenance and support of the equipment.

The above three domains are normally grouped together and referred to as *MPT*.

HUMAN ENGINEERING (HE) ensures that system features affecting or depending on human performance are designed with a clear understanding of the limits and capabilities of the operators and maintainers. The primary goal is to optimize system performance by influencing design to capitalize on individual human strengths (both physical/anthropometric and cognitive), while avoiding design features that depend on performance requirements for which humans are not well suited.

SYSTEM SAFETY (SS) aims to influence system design so that potential safety issues and concerns are satisfactorily addressed in the trade-offs among design, operational capability, training manpower, personnel, cost and schedule.

HEALTH HAZARDS (HH) considers long-term exposure to potentially harmful effects due to noise, pressure, shock, vibration, and other conditions (such as the use of radiation or toxic substances).

SOLDIER SURVIVABILITY (SSv) is defined in terms of the soldier and the system as follows: SOLDIER - those characteristics that enable them to withstand or avoid adverse military action, effects of natural phenomena, loss of effective mission capability, and loss of life. SYSTEM - those characteristics that can reduce fraticide, detectability, and physical and mental fatigue; prevent attack and damage from attack; and minimize medical injury.

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MANPRINT: Questions and Answers

As a result of the Army's MANPRINT program, future weapons will incorporate design features that allow a greater cross section of our projected soldier force to successfully operate and maintain the equipment when fielded. Before "bending metal," designers must answer this fundamental question: "Can these soldiers, with this training, perform these tasks, to these standards, under these conditions?"

MANPRINT (Manpower and Personnel Integration) is a comprehensive management and technical program to improve total system performance by focusing on soldier performance and reliability early in the system development and acquisition process. MANPRINT objectives are achieved by the continuous integration of human engineering, manpower, personnel, training, system safety, health hazards, and soldier survivability considerations through the system development and acquisition process.

Some of the most commonly asked questions about MANPRINT are:

Q: What is a SMMP?

A: The System MANPRINT Management Plan (SMMP), whose format is found in the MANPRINT User's Source Guide, serves as guidance for managing and executing a MANPRINT program. It functions as a bridge between the requirements document, solicitation, evaluation of proposals, contractor execution, and testing. The SMMP includes a discussion of residual issues and concerns to be resolved; a discrete listing of detailed questions to serve as a guide for identifying MANPRINT tasks to be planned, executed, and tested; and a detailed description of operators and maintainers. The SMMP can also be used as an audit trail for issues as they are surfaced, researched, and resolved, but is not designed to be a data repository.

Q: How does MANPRINT fit into materiel and automated information system development?

A: MANPRINT integrates combat, training, materiel, and functional proponent development concerns with resources, capabilities, and constraints during all phases of the Life Cycle System Management Model (LCSMM). A MANPRINT Joint Working Group (MJWG), established by the combat developer or functional proponent, prepares a SMMP with assistance from representatives from each of the MANPRINT domains and other interested agencies. Extensive front-end analyses are conducted to identify the performance and supportability issues related to both the predecessor and proposed systems. Based on the results of supporting analyses, MANPRINT goals, constraints, and requirements are entered into the Mission Needs Statement (MNS), Operational Requirements Document (ORD), and Request for Proposals (RFP). MANPRINT objectives are refined as required to effect the necessary trade-offs between cost and total system performance. Finally, MANPRINT issues are evaluated during testing and in the source selection process.

Q: Do MANPRINT and ILS address the same issues?

A: No, however, MANPRINT and ILS are mutually supportive, and there are more similarities than there are differences. The MANPRINT domains all influence ILS. The difference is one of perspective. MANPRINT influences total system performance by identifying potential equipment design deficiencies early in the acquisition cycle. It focuses on human performance issues for the operation as well as the supportability of the system. MANPRINT will also look at issues such as Personnel Costing, Skill Grade Authorization, Space Imbalance MOS, Gender Mix, USAR and NG Strength, and many others. ILS will look at the MANPRINT domains and perhaps Transportability, Packaging, Handling and Storage, Facilities, and Standardization and Interoperability. A successful MANPRINT effort will eliminate designs that unnecessarily complicate operator and maintainer tasks. Later, MANPRINT and ILS use Logistic Support Analysis (LSA) results. While MANPRINT and ILS responsibilities are often vested in the same individual, MANPRINT is more closely aligned with systems engineering.

Q: Is MANPRINT appropriate during NDI acquisition?

A: Yes. When conducting market surveys, acquisition specialists view new products and technologies with an eye towards enhancing soldier and unit performance. A favorable market survey may lead to a decision to pursue the NDI option. MANPRINT goals and constraints are inserted into a Test and Evaluation Plan (TEP), and the market investigation stage is initiated. If the NDI option remains viable, a trade-off process may be used to refine the TEP and develop valid equipment selection criteria. The selection criteria will embody MANPRINT issues and concerns. The eventual source selection process includes a MANPRINT evaluation of the system to ensure that the Army achieves the highest return on its investment, and optimizes total system performance.

Q: How does MANPRINT influence Army acquisition decisions?

A: MANPRINT issues and concerns (identified in the MANPRINT Assessment prior to milestone decision reviews) are carefully considered by the ASARC before determining whether the program should be terminated, delayed, or allowed to proceed to the next phase of development.

Q: How is MANPRINT viewed by the Army leadership?

A: The Army leadership recognizes that a successful MANPRINT effort optimizes total system performance, reduces operation and support costs, and eliminates or reduces health and safety hazards. Hence, the Army Acquisition Executive (AAE) has mandated that MANPRINT will be a separate area of consideration in source selection.

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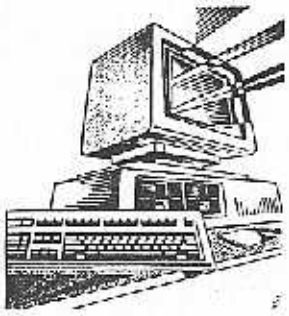
MANPRINT when discussing the DoD 5000 series and HSI during their courses.

U.S. Army War College

This senior service school of the Army prepares officers to assume positions of leadership in an uncertain, complex and ambiguous environment. Chapter 17 of Army Command and Management: Theory and Practice Reference Text includes a good discussion/overview of MANPRINT.



Army Logistics Management College (ALMC)

The U.S. Army schools for Acquisition Management and Logistics Science are two schools which make up ALMC. The following courses have specific blocks of instruction set aside for MANPRINT:

- **Combat Developers Course** - 2 hours
- **Logistics Executive Development Course (LEDC)** - 2 hours
  LEDC serves as the Army's senior logistic course to prepare civilian/military managers for key executive positions within the Army and DoD logistic systems.
- **Logistics Management Development Course** - 2 hours
  The course provides an overview of the Army logistic system. The life-cycle management model is the common thread and is used to highlight the more significant considerations of RDT&E, acquisition, inventory management, maintenance, and disposal of Army materiel.
- **Materiel Acquisition Management Course** - 4 hours
  This course provides a broad spectrum of knowledge pertaining to the materiel acquisition process (MAP). It covers national policies and objectives that shape Army acquisition.
- **Force Modernization & Sustainment Course** - 2 hours
  This "How the Army Runs" course emphasizes and is directed towards how the Army equips the force. It provides a management overview of force modernization processes, their impacts and their interrelationships.
- **Intermediate Acquisition Logistics Course** - case study
  This is a forum for the mid-level DoD student assigned to acquisition logistics functions and provides an analysis of the life-cycle process, the system engineering process, and the role ILS plans and products play in these two processes.
- **Associate Logistics Executive Development Course (ALEDC)** - 2 hours
  ALEDC serves as the Army's senior logistic course for Reserve Component Officers, preparing them for executive and policymaking mobilization assignments. The course provides insights into the multifunctional areas of logistics and their integration within DoD.
- **Manpower and Force Management Course** - 2 hours. Manpower blocks of instruction are tailored to the manpower functions described in AR 570-4. The force management subject areas address the fundamental aspects of force management; developing, manning and equipping the force.

U.S. Air Force

The Air Force Institute of Technology, Acquisition Logistics Fundamentals Course includes a block covering HSI.

If you would like more information about our two formal MANPRINT courses or our workshop, please contact Mr. Jan Dykhuis at (703) 325-2098 or DSN 221-2098.

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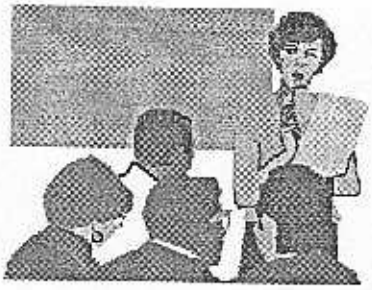
Manpower and Personnel Integration (MANPRINT) Practitioners Conference



The Office of the Deputy Chief of Staff for Personnel (ODCSPER) held its annual MANPRINT Practitioners Conference, 9-11 August 1994, in Arlington (Rosslyn), VA. This year's theme was "MANPRINT: The Expanding Challenge."

Several attendees mentioned their appreciation for the high level interest evident in this year's conference. Their participation reinforced the fact that the senior Army leadership continues to support and maintain a strong interest in the MANPRINT program. The conference included a keynote address by the acting DCSPER, MG Wallace G. Arnold, on "MANPRINT in Action"; an address by MG Jay Garner (Assistant Deputy Chief of Staff for Operations and Plans-Force Development), on "The Impact of MANPRINT on Battlefield Digitization (The Operational Perspective)"; and an address on "The MANPRINT Challenge in Acquisition" by LTG Forster (Military Deputy to the Army Acquisition Executive). Other presentations included "MANPRINT in Automated Information Systems" - Mrs. Miriam Browning (Director, Army Information); "Battlefield Digitization (Materiel Technology Perspective)" - Mr. Vito DeMonte (Directorate Executive, Sensors, Signatures, Signals and Information Processing (S3I) Directorate, U.S. Army Research Laboratory (ARL)); and "Battlefield Digitization (MANPRINT Technology Perspective)" - Dr. Robin L. Keesee (Directorate Executive, Human Research and Engineering Directorate, ARL). Dr. Harold R. Booher, the Director of MANPRINT, delivered "The State of MANPRINT" address and provided his vision for the future. Conference participation included over 140 attendees from government, academic, and industry organizations.

The purpose of this year's conference was to provide a hands-on forum for improving practitioner skills, to show the benefits and value added (by MANPRINT) to programs, and to inform practitioners of changes and challenges facing them in the MANPRINT community. We attempted to improve hands-on skills in workshops, showed benefits and value added through Program Manager presentations on cost avoidance and success stories, and addressed changes and challenges through senior level briefings. Expanding challenges and innovative solutions were a common thread throughout the conference. Unfortunately, we did not have enough time to examine all practitioner areas of interest during the workshops. We will survey the field in an upcoming MANPRINT Quarterly to determine workshop topics for next year.

Practitioner participation was exceptional. Opinions and input permeated all aspects of the conference. Guest speakers were queried on their presentations, the feedback session opened the floor for discussion, and spirited exchanges of information were evident in the workshops. Of great benefit to most attendees was the time allotted for networking. Many new contacts were made and common areas of interest discussed. During the feedback session, the group discussed the following questions:

- There appears to be a major conflict between the HSI and MANPRINT programs. How do we eliminate these conflicts to minimize confusion and produce the most effective joint process?
- Who performs the MANPRINT assessment on ACAT III and IV systems?
- What is the difference, if any, between ACAT I/II and ACAT III/IV MANPRINT assessments?
- Why is there little or no MANPRINT input in the development of training devices and where does the (MANPRINT) expertise come from?

- What modeling and simulation tools are available or under development to analyze or assess MANPRINT application to weapon and automated information system programs?
- How do we ensure that complete and consistent MANPRINT requirements are transferred to the RFP?
- How can we improve communication between MANPRINT organizations and contractors on new and evolving issues and initiatives (the MANPRINT Quarterly is not enough)?

Responses received during the feedback session are being included in the After Action Report. Selected responses will be included in the next Quarterly. Practitioners wishing to comment on the above concerns are encouraged to mail or FAX their responses to DAPE-MR at the address/number listed on the Quarterly.

During the course of the conference, copies of some presentations were not available. Those practitioners desiring copies of a missing presentation should request those slides from DAPE-MR by name and presenter.

This year's conference provided several interesting topics and much food for thought. For more information on the content or other specifics for the conference, contact Headquarters Department of the Army, ATTN: DAPE-MR, Office of the Deputy Chief of Staff for Personnel, 300 Army Pentagon, Washington, DC 20310-0300, COM (703) 695-9214 or DSN 225-9214.

Soldier Information Interface

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can be an effective tool for training and maintaining critical skills. In the Soldier Survivability domain, the design of the SII has several major implications. The first is the contributions that can be made to fratricide reduction through enhanced situational awareness and special alerts or warnings, which may be used to signal potential incidents (e.g., targeting of friendly entities). The second relates to the issue of operator workload and fatigue. Effective design of the SII should minimize the cognitive load on the operator, reducing mental and physical fatigue and thereby enhancing overall performance. Finally, the use of effective alerts and warnings can enhance crew survivability through increased awareness of enemy sensor and targeting activities.

Finally, the design of the SII generates trade-offs in the Manpower and Personnel domains. The notion of the decentralized staff becomes more feasible and more likely in the digitization era. The structure and manning of that staff will obviously be directly affected by the design and capabilities of the SII. Increasing the embedded processing of the SII may alter manning requirements and/or the skill requirements of individual soldiers and the force as a whole. Any reallocation of functions may also affect the MOS requirements for specific positions or change the training requirements for those MOSs (e.g., basic computer skills, network management skills). In addition, the potential need for redundant capabilities across systems to adapt to the loss of key nodes has definite implications for the variety of skills that the individual operator must develop and sustain. The use of increasingly complex software tools also has implications for maintenance personnel requirements, in terms of the sophistication of software support personnel.

These are the types of trade-offs that will need to be considered in implementing an effective SII. There are clearly force structure implications involved here in terms of the structure of MOSs and the relative demand for specific types of individuals. Operating and maintaining digital systems will demand quality personnel with the intelligence and skills to manage these advanced technologies.

ARTICLES & COMMENTS

Articles, comments, and suggestions are welcomed. Submit to: MANPRINT Quarterly, DA, ATTN: DAPE-MR, ODCSPER, 300 Army Pentagon, Washington, DC 20310-0300; DSN 225-9213, COM (703) 695-9213, FAX (703) 697-1283.

POLICY: MANPRINT Directorate, HQDA (DAPE-MR), Washington, DC 20310-0300, DSN 225-9213, COM (703) 695-9213.

MANPRINT TRAINING: US Total Army Personnel Command, ATTN: TAPC-PLM, 200 Stovall Street, Alexandria, VA 22332-1345, DSN 221-2098, COM (703) 325-2098, FAX (703) 325-7927.

PROCUREMENT & ACQUISITION: US Army Materiel Command, ATTN: AMCDE-AQ, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001, DSN 284-5696, COM (703) 274-5696.

HSI AND OUSD (P&R) RESEARCH INFORMATION/DIRECTORY OF DESIGN SUPPORT METHODS: Defense Technical Information Center, MATRIS Office, DTIC-AM, 53355 Cole Road, San Diego, CA 92152-7213, (619) 553-7000, DSN 553-7000, FAX (619) 553-7053.

TEST & EVALUATION: Operational Test & Evaluation Command, 4501 Ford Avenue, Alexandria, VA 22302-1458, COM (703) 756-2487.

HEALTH HAZARD ASSESSMENT: US Army Environmental Hygiene Agency, Health Hazard Assessment Office, ATTN: HSHB-MO-A, Aberdeen Proving Ground, MD 21010-5422, DSN 584-2925, COM (410) 671-2925, or E-mail: HSHBMOA@AEHA1.APGEA.ARMY.MIL.

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Director for MANPRINT

The MANPRINT Quarterly is an official bulletin of the Office of the Deputy Chief of Staff for Personnel (ODCSPER), Department of the Army. The Manpower and Personnel Integration (MANPRINT) program (AR 602-2) is a comprehensive management and technical initiative to enhance human performance and reliability during weapons system and equipment design, development and production. MANPRINT encompasses the seven domains of manpower, personnel, training, human engineering, system safety, health hazards and soldier survivability. The focus of MANPRINT is to integrate technology, people, and force structure to meet mission objectives under all environmental conditions at the lowest possible life-cycle cost. Information contained in this bulletin covers policies, procedures, and other items of interest concerning the MANPRINT Program. Statements and opinions expressed are not necessarily those of the Department of the Army. This bulletin is prepared quarterly under contract for the MANPRINT Directorate, Office of the Deputy Chief of Staff for Personnel under the provisions of AR 25-30 as a functional bulletin.

*U.S. G.P.O.:1994-300-723:97 Fall 1994